KYOSHO MP10 TKI2

BRUSHLESS CONVERSION KIT

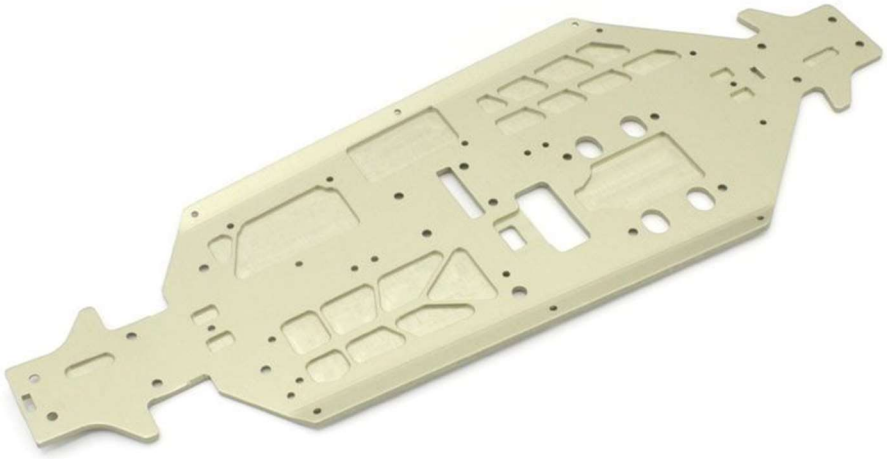
ASSEMBLY MANUAL

VERSION 20240603

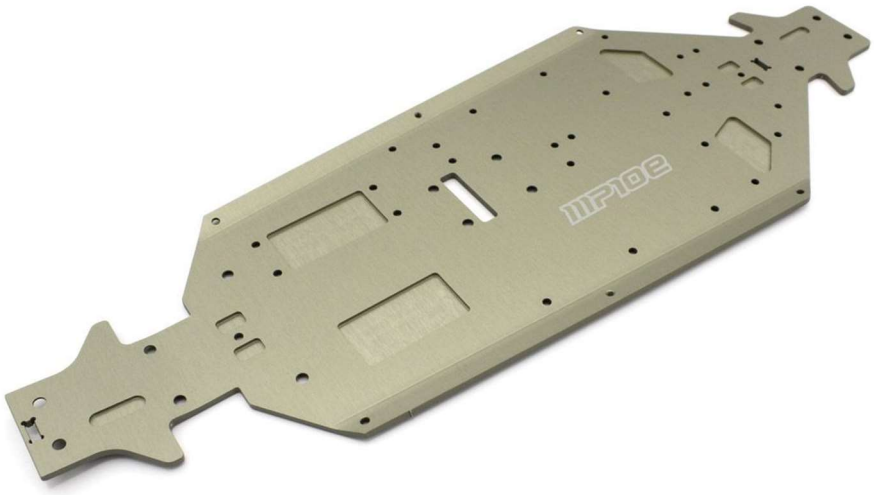
1. Introduction

The purpose of this manual is to convert Engine Powered GP 1/8 buggy Kyosho MP10 TKI2 to electric brushless EP buggy (MP10e TKI2). Brushless Conversion Kit IFW451 was designed many years ago for older versions of buggies and is has single side battery setup. New Kyosho EP buggy MP10e and MP10e TKI2 are designed for two battery setup (left-right). Also, new arrangement od brushless motor&ESC helps to optimizes front-to-rear weight balance. As MP10 TKI2 is very similar to MP10e TKI2, converting it to electric buggy with obsolete conversion kit can significantly reduce performance.

So I decided to design new conversion kit which could be 3D printed. My priority was to design new parts to be as close as possible to original MP10e TKI2 parts. I also wanted conversion to be completely reversible. As chassis of MP10 TKI2 (IF601) and MP10e TKI2 (IF555) are different I had to redesign parts to fit hole arrangement of MP10 TKI2 chassis.



MP10 & MP10 TKI2 Chassis (IF601)



MP10e & MP10e TKI2 chassis

The only exception is center diff mount. Holes for spur gear in MP10 and MP10e are in opposite. Mounting of center diff could be done by making additional hole for spur gear. I created stencil for that purpose. More on this later.

Also I redesigned some parts for FDM 3d printing to avoid using large area of supports, long bridges and overhangs. The parts should be more simple in shape, easier to print and stronger. A battery trays consist of few elements that need to be glued (best to use CA glue).

2. Part list

2.1 Printed parts

No	Part name	Quantity
1	Motor Mount A [1] (experimental)	1
2	Motor Mount B [1] (experimental)	1
3	Central Diff Mount [1]	1
4	Central Diff Plate [1]	1
5	Chassis Brace [1]	1
6	Radio Box [1]	1
7	Radio Box Cover [1]	1
8	Servo Mount [1]	1
9	Motor Spacer [1]	1
10	Motor Spacer Clamp [1]	1
11	ESC Plate [1]	1
12	Battery Tray Mount L [1]	1
13	Battery Tray Mount R [1]	1
14	Battery Tray [2]	2
15	Battery Tray Clamp [2]	2
16	Battery Tray Foot [4]	4
17	Battery Tray Support Long [4]	4
18	Battery Tray Support Short [2]	2
19	Cable Holder [1]	1
20	Cable Holder Cover [1]	1
21	Cable Guide [2]	2
22	Cable Guide Cover [2]	2
23	Front Brace [1]	1
24	1 Hole Cover [1]	1
25	3 Hole Cover [1]	1
26	Spur Gear 46T [1] – part A (experimental)	1
27	Spur Gear 46T [1] – part B (experimental)	1
28	Battery Tray Filler for Short Lipo [2] – only if using short Lipo	2

2.2 Screws

No.	**Dimension**	**BHCS**	**FHCS**	**SHCH**	**SHCS**	**Total**
1	M2.5x6				1	**1**
2	M2x10				2	**2**
3	M2x6				2	**2**
4	M3 nut					**1**
5	M3 washer					**2**
6	M3x10	4	16	2	1	**23**
7	M3x12				4	**4**
8	M3x16	1	2		2	**5**
9	M3x6	2				**2**
10	M3x8		5			**5**
11	M4x10		5			**5**
12	M4x12		4			**4**
13	M4x8	1				**1**

2.3 Hardware parts

No	Part name	Quantity
1	ESC (e.g. Hobbywing Xerun XR8 Pro G3)	1
2	Brushless Motor (e.g. Hobbywing Xerun 4268 SD G3 1900kV)	1
3	Sensor Cable (30 cm)	1
4	Battery Strap (width 20 mm, length approx.. 200 mm)	4
5	Silicon Cable AWG12	~1m min.
6	Double Sided Tape	~8cm
7	RC Clip	1

3. Printing parts

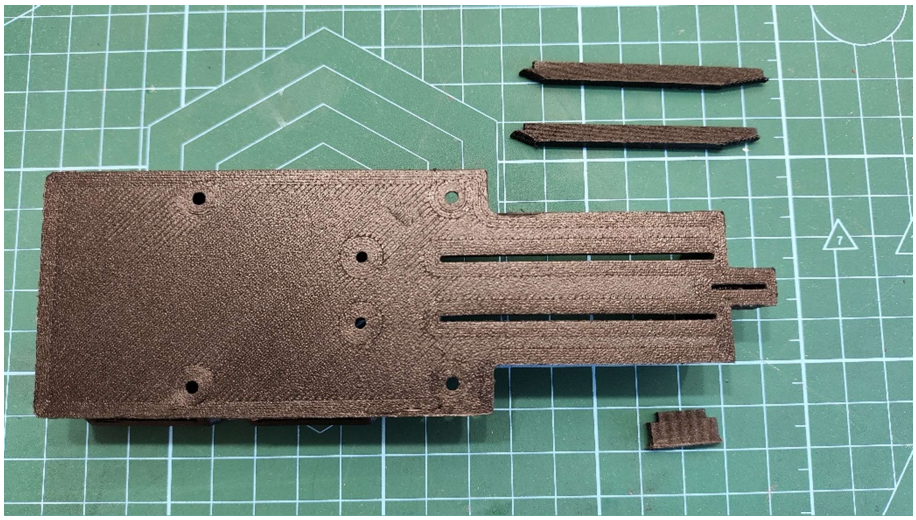
I highly recommend printing parts using strong filament such as PACF or PC. Also, well calibrated printer with heated chamber are recommended. Use at least 5-6 perimeters, top/bottom solid layers and 60% infill. If the holes are too small, enlarge them with a drill of appropriate size.

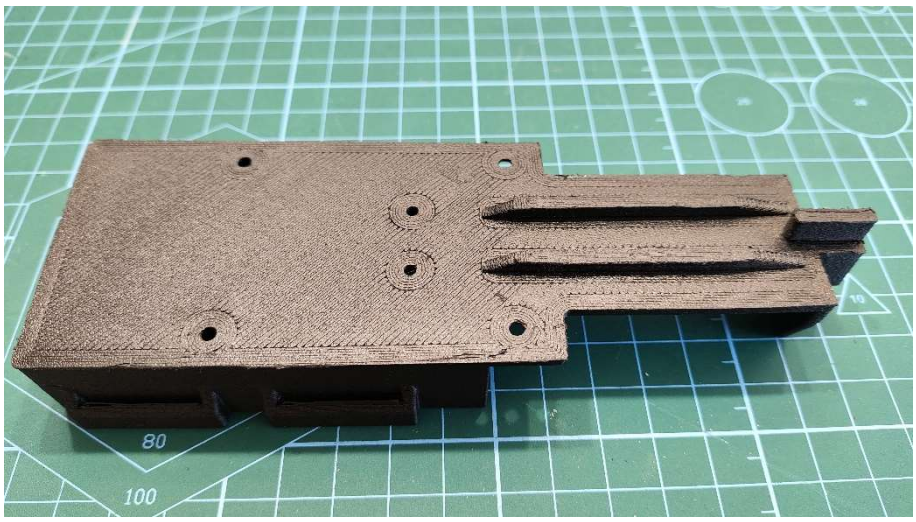
Parts like Motor Mount A, Motor Mount B and Spur Gear 46T are for experimental purpose only. 3d printed Motor Mount had too much flex, so it should be aluminium made, I recommend original Kyosho Aluminum Motor Mount (MP10e) IF551. You can leave 45T Spur Gear from MP10.

4. Assembly

4.1 Battery Tray (2x)

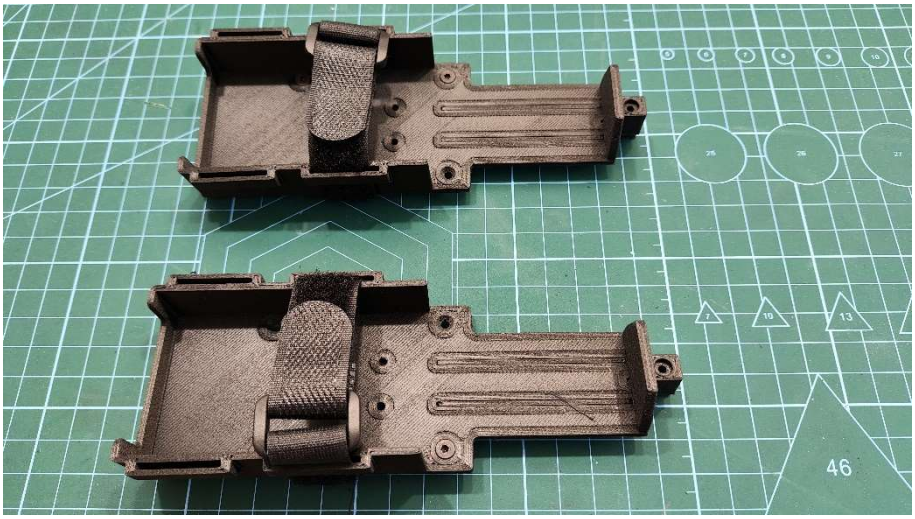
Insert two Battery Tray Support Long and one Battery Tray Support Short into dedicated holes. They should fit tight, but you can use CA glue.





Now screw 4 Battery Tray Foot (4 x M3x10 FHCS),

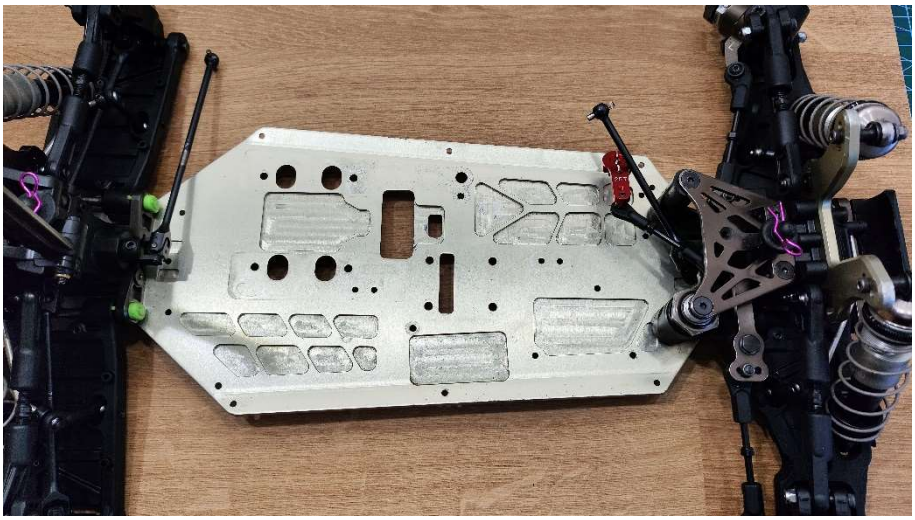
install Battery Straps



and Battery Tray Clamp (2 x M3x10 SHCS).

4.2 Cutting hole

Disassembly all unnecessary equipment.



Screw Template for cutting hole [1] to the Chassis.

Drill 5 holes using 3mm drill.

Enlarge holes using 4, 5, 6 and finally 7mm drill.

Use file to clean hole edges.

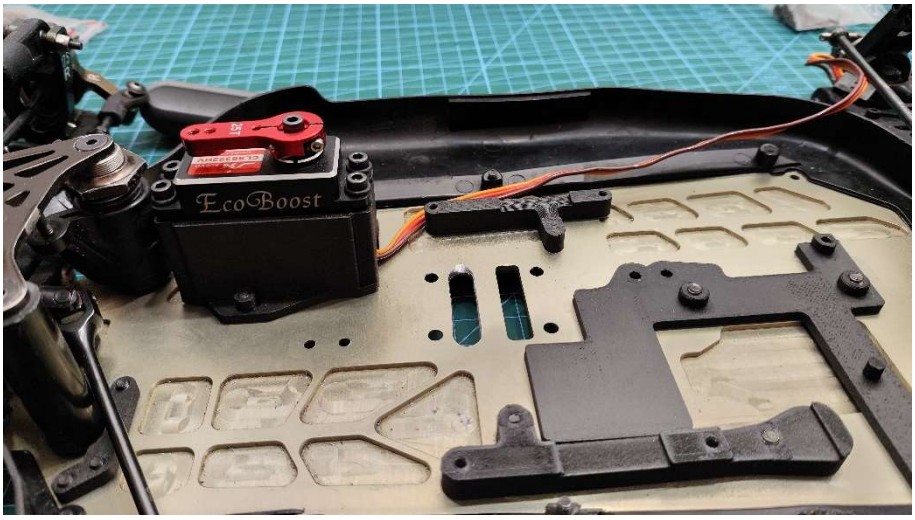
4.3 Installing parts

Install 1 Hole Cover and 3 Hole Cover (4 x M3x8 FHCS). Those are only for covering unused holes to prevent form dust.

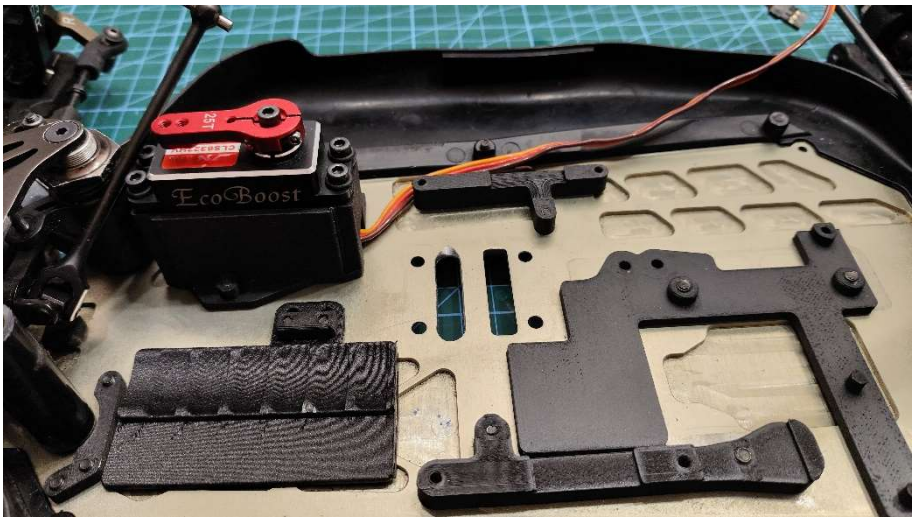
Install Chassis Brace (2 x M4x10 FHCS), Battery Tray Mount L (1 x M4x10 FHCS, 1 x M3x10 FHCS) and Battery Tray Mount R (1 x M3x10 FHCS).

Install servo in Servo Mount (4 x M3x10 SHCS).

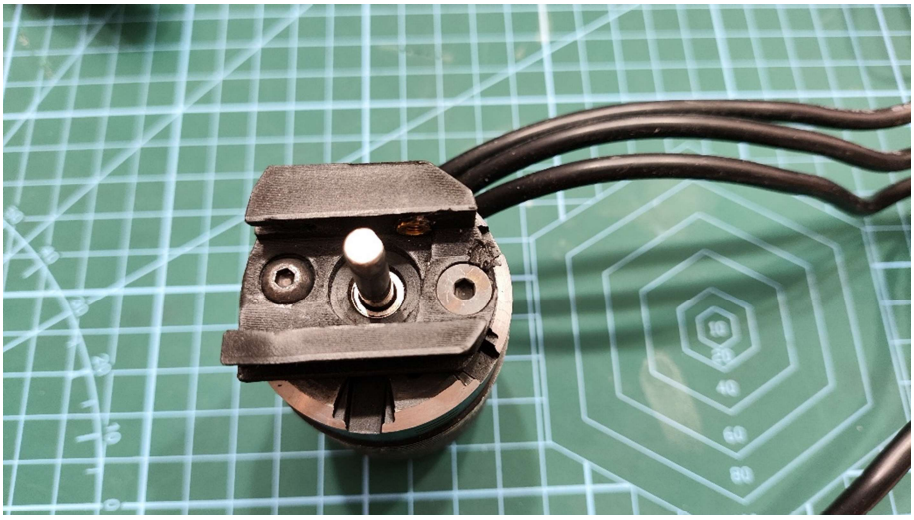
Install Servo Mount (3 x M3x10 FHCS).



Install Motor Spacer (2 x M3x10 FHCS). Don’t tight it yet. You will do It after installing motor.

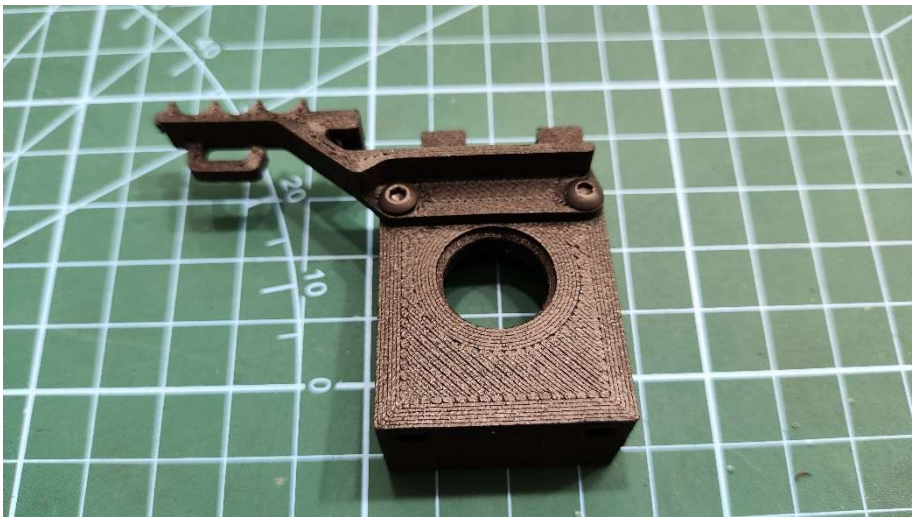


Screw Motor Mount B to Motor (1 x M4x8 BHCS, 1 x M4x10 FHCS).

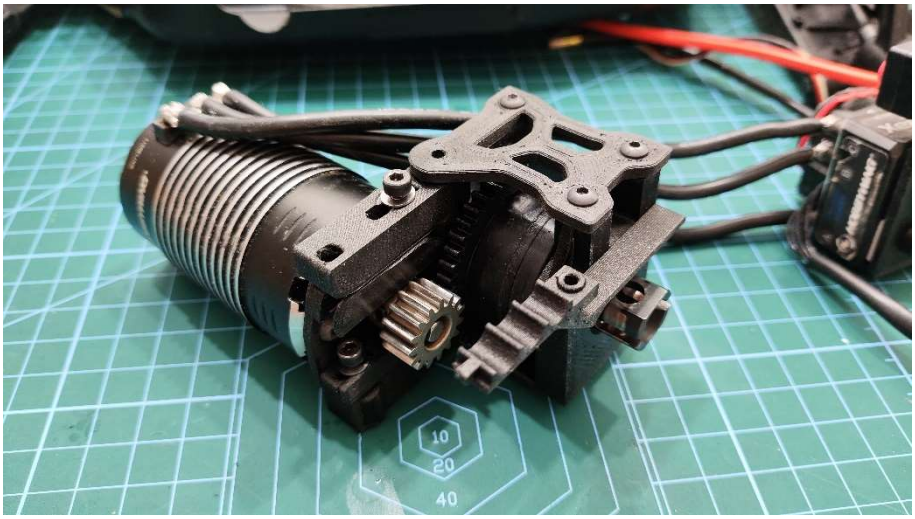


Install Motor Mount B in Motor Mount A (2 x M3x16 SHCS). Use M3 washers with M3x16 SHCS. Don’t tight screws now, you will do it after setting proper gear mesh.

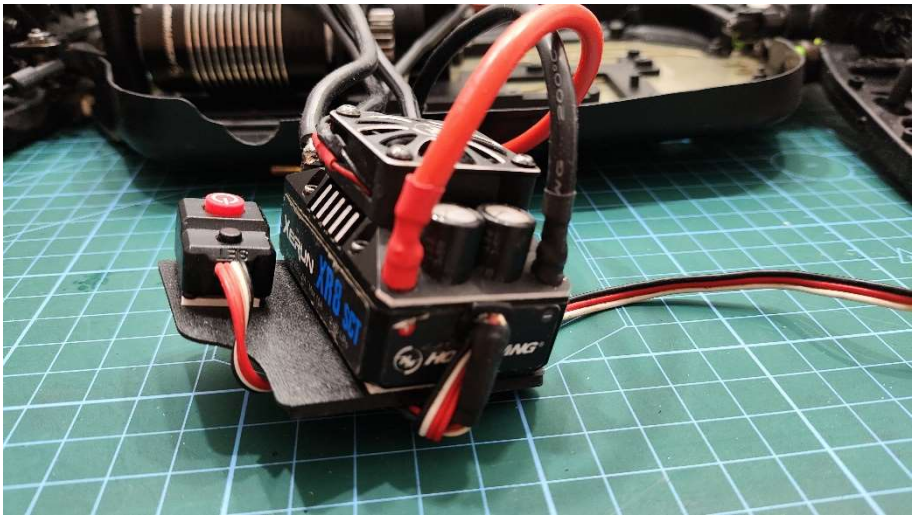
Screw Cable Holder to Central Diff Mount (2 x M3x6 BHCS).



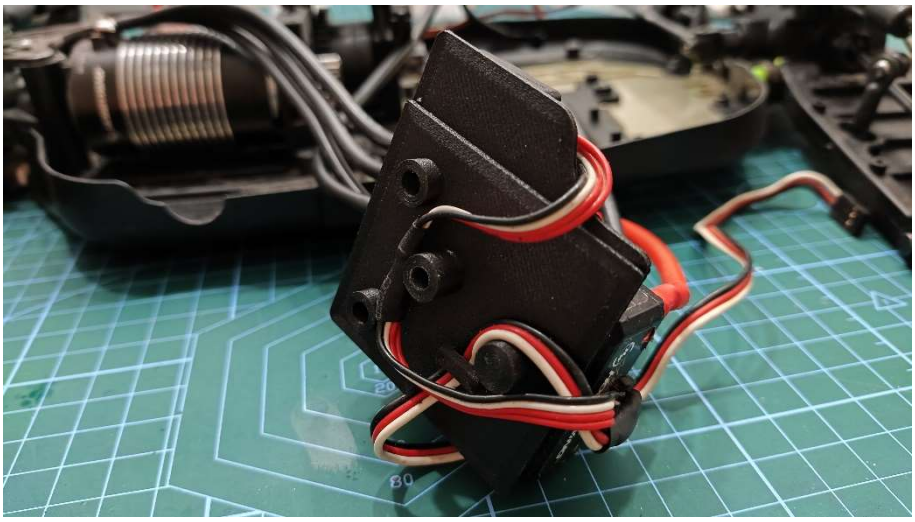
Install Central Differential between Motor Mount B and Central Diff Mount and screw them together with Central Diff Plate (3 x M3x10 BHCS).



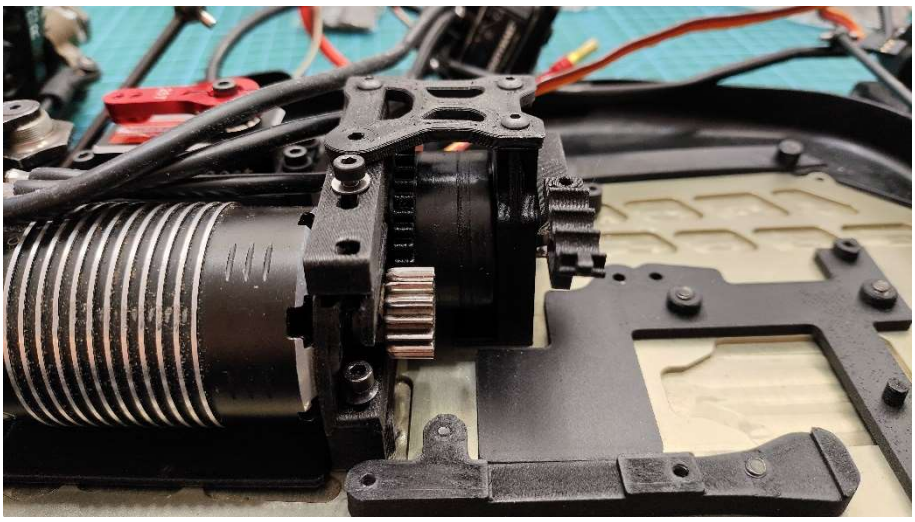
Attach ESC and ESC Switch to ESC Plate using Double Sided Tape.



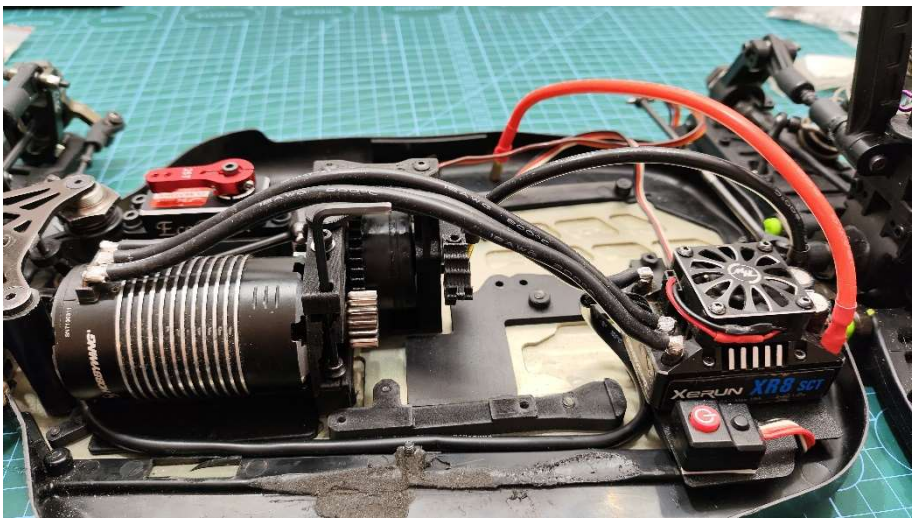
Lead cables under ESC Plate.



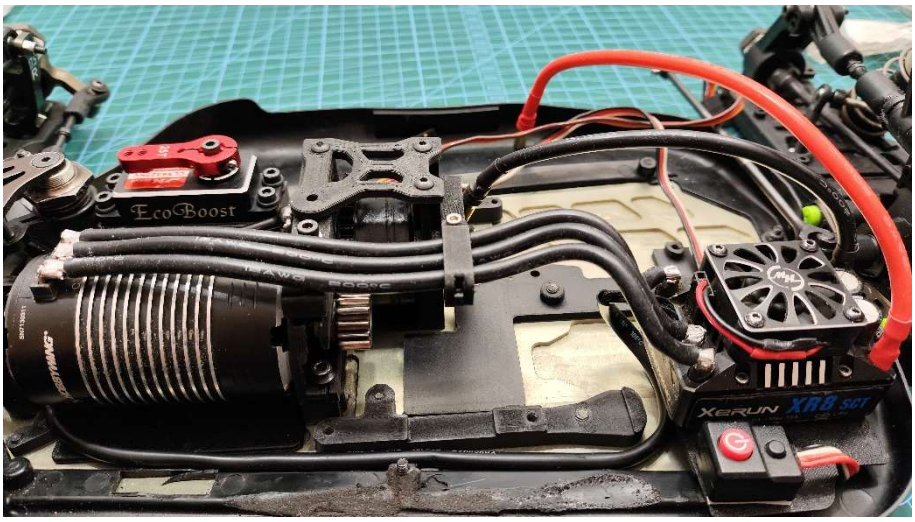
Install Motor and Differential package (4 x M4x12 FHCS). Do not forget to insert Drive Shafts into Differential.



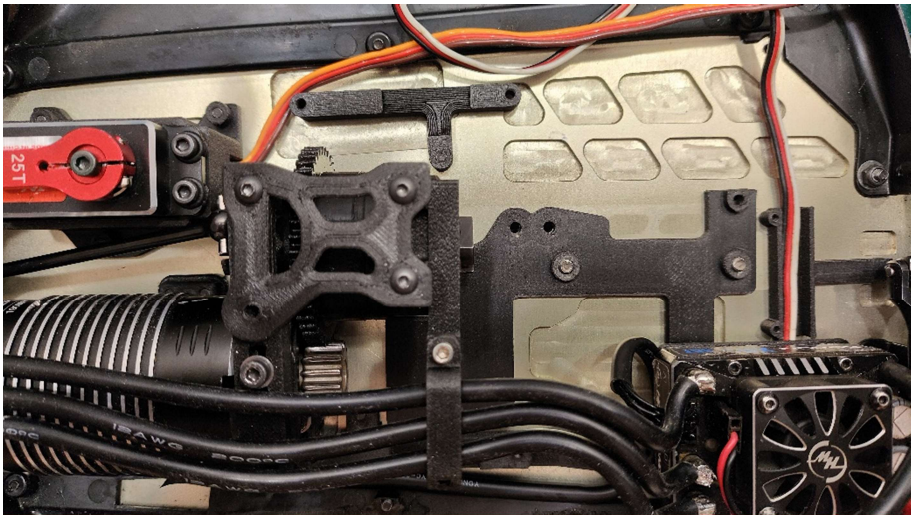
Install ESC Plate with ESC (1 x M4x10 FHCS).



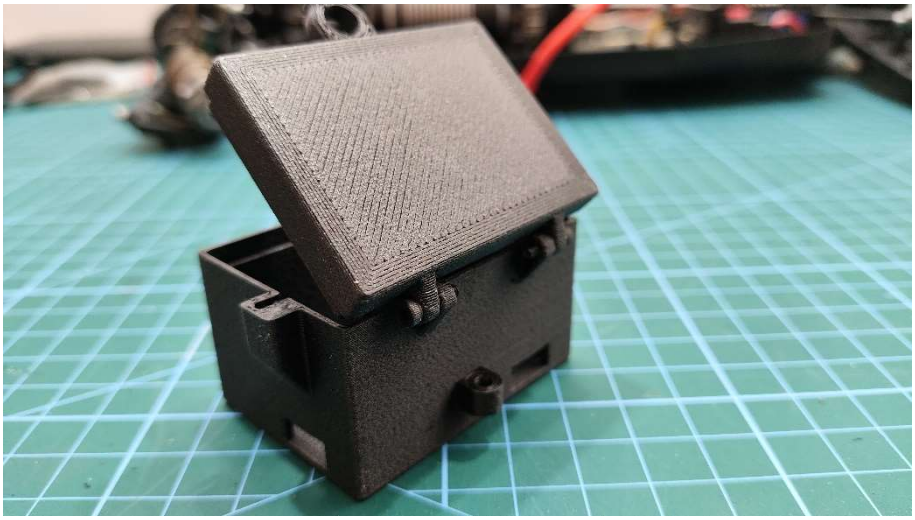
Install Cable Holder Cover (1 x M2,5x6).



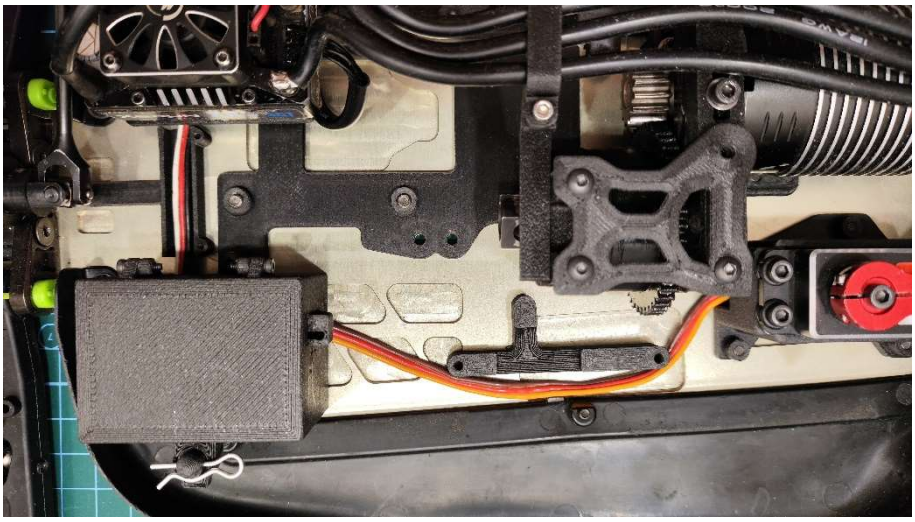
Install Cable Guide (1 x M3x8).



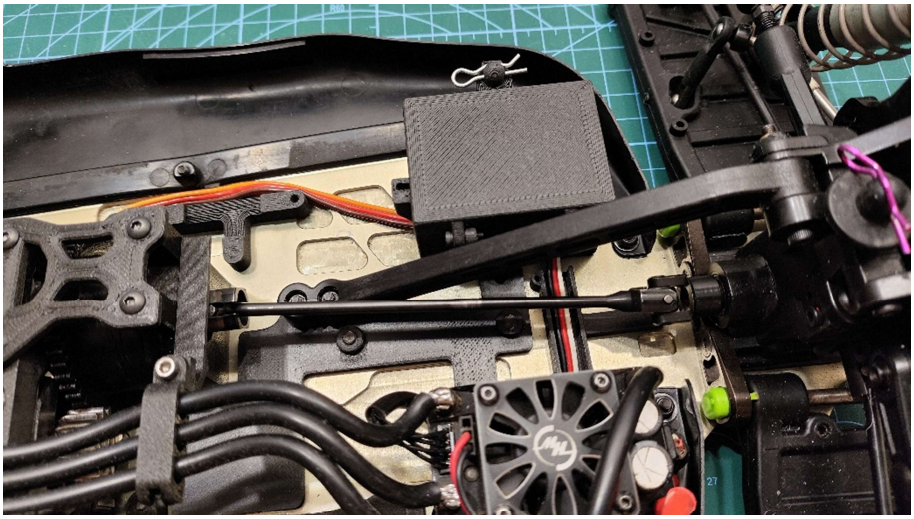
Mount Radio Box Cover with Radio Box (2 x M2x10 SHCS).



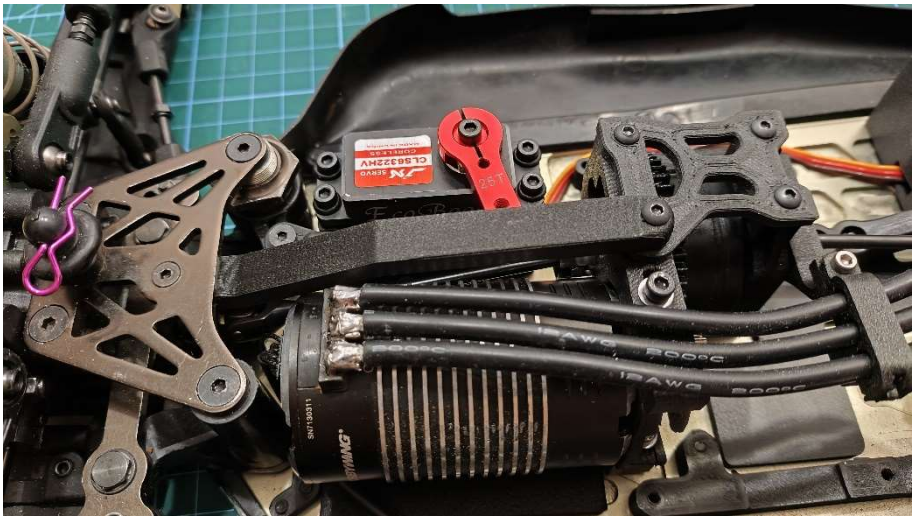
Install Radio Box (1 x M3x10 FHCS, 1 x M3x10 BHCS).



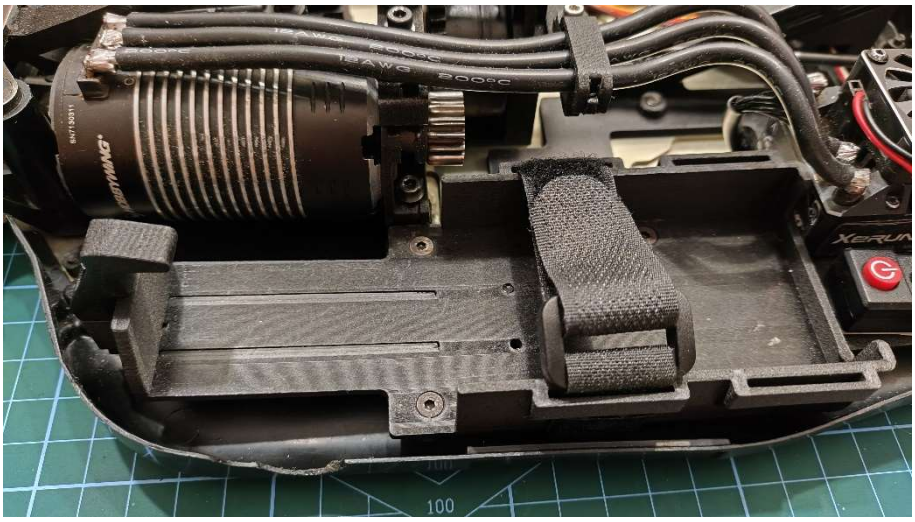
Screw Rear Chassis Braces (2 x M3x16 FHCS).



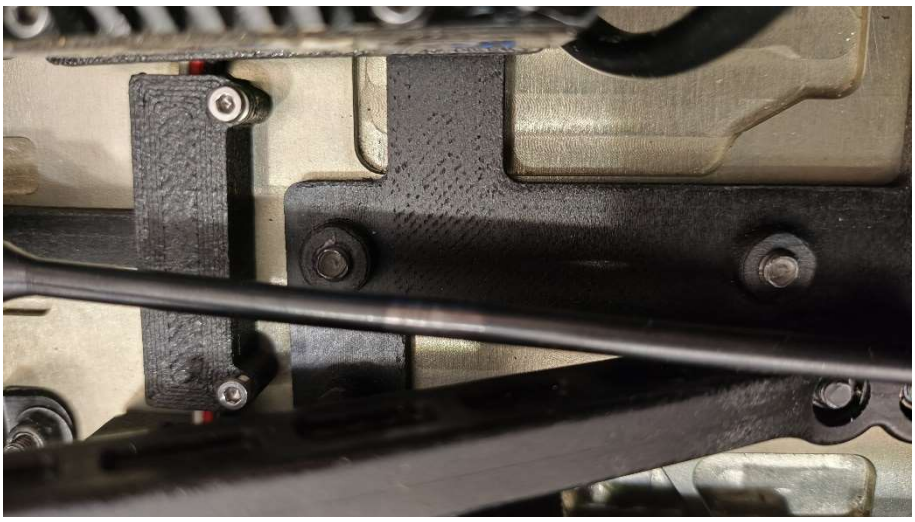
Install Front Brace (1 x M3x10 FHCS, 1 x M3x16 BHCS).



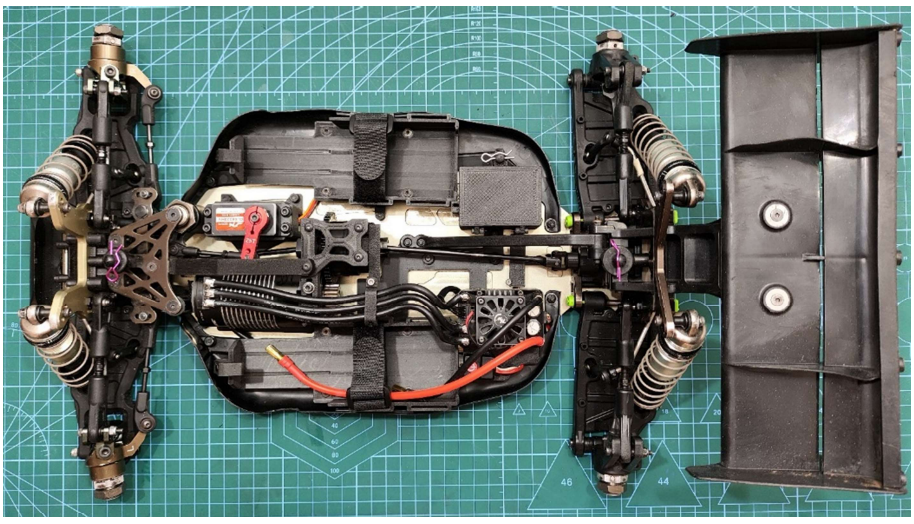
Install Battery Trays.



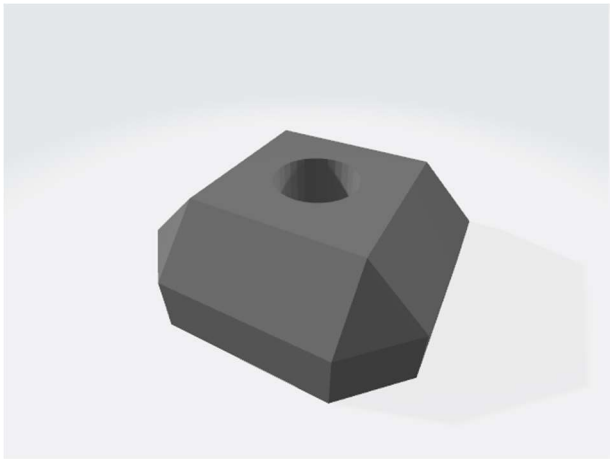
Install Cable Guide Cover.



That’s it. Conversion is over. Congratulations, now you have MP10e TKI2 ;) Have fun!

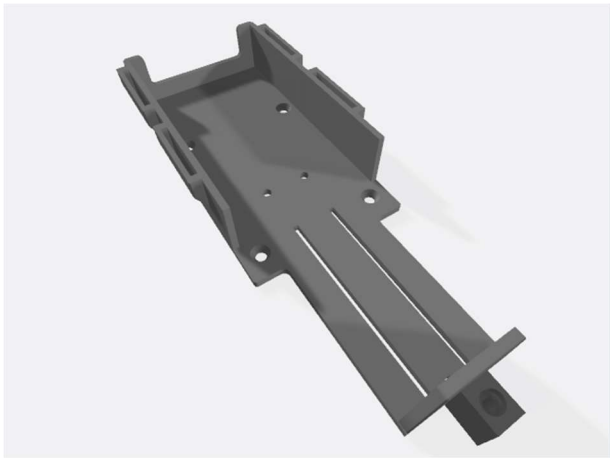


5. Parts

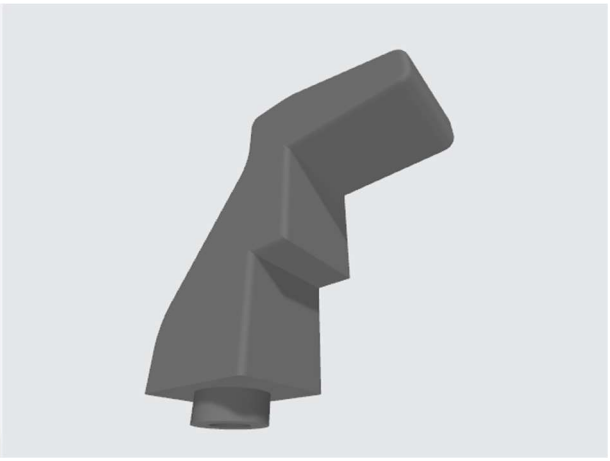


1 Hole Cover [1]

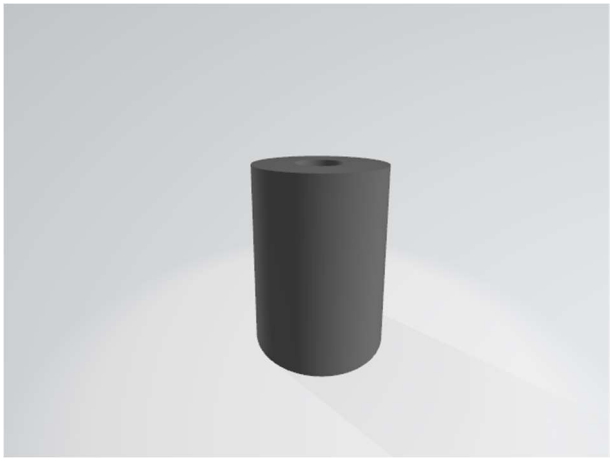
3 Hole Cover [1]



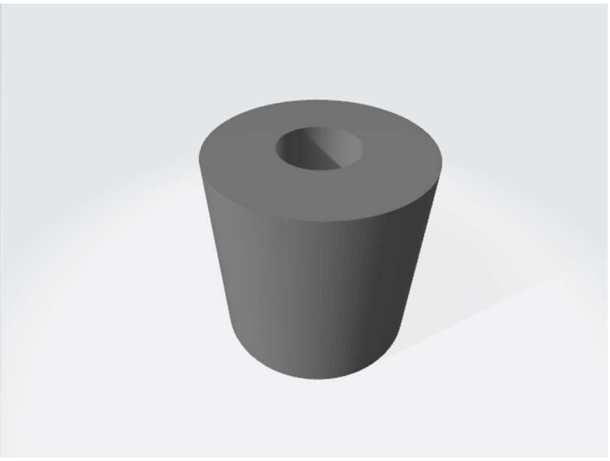
Battery Tray [2]



Battery Tray Clamp [2]

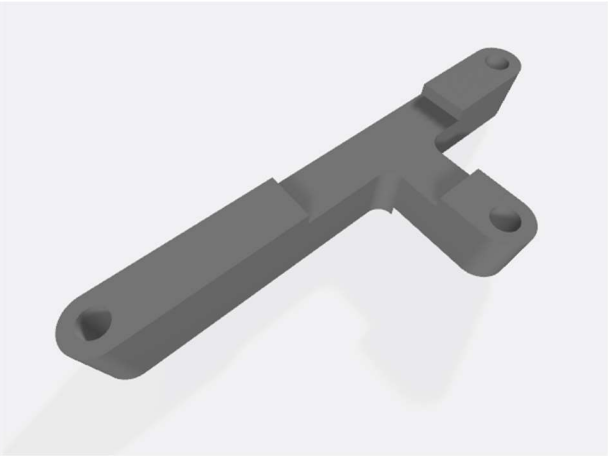


Battery Tray Filler for Short Lipo [2]

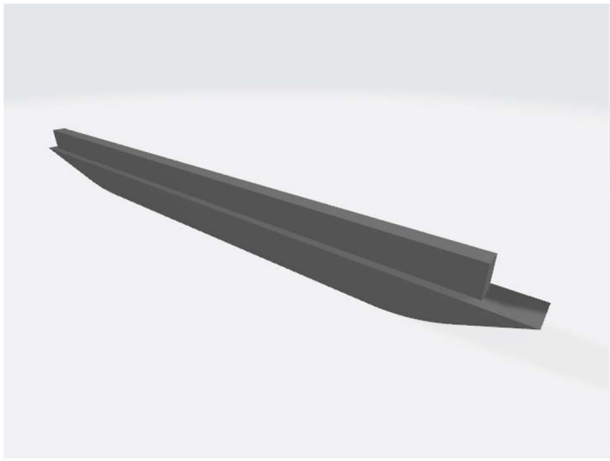


Battery Tray Foot [4]

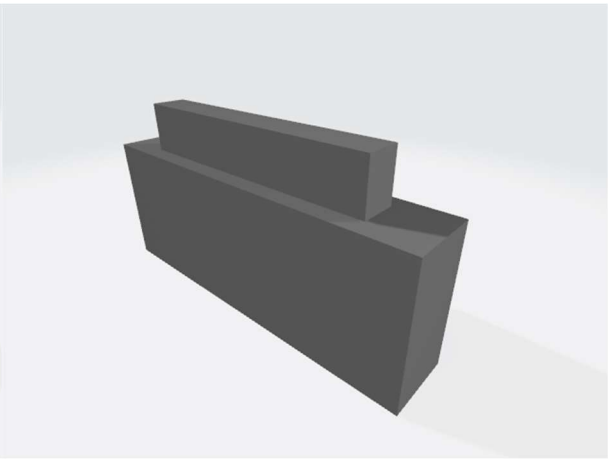
Battery Tray Mount L [1]



Battery Tray Mount R [2]



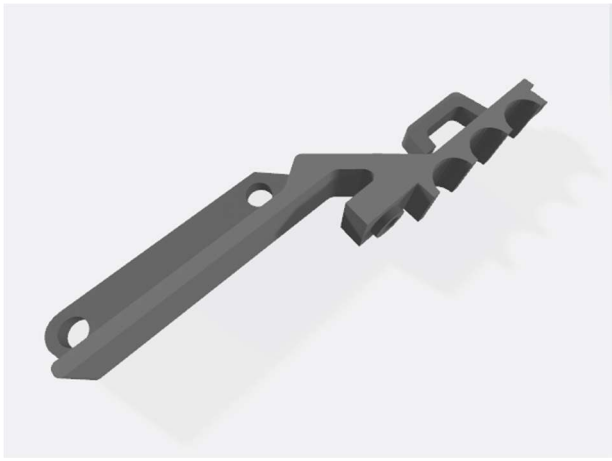
Battery Tray Support Long [4]



Battery Tray Support Short [2]

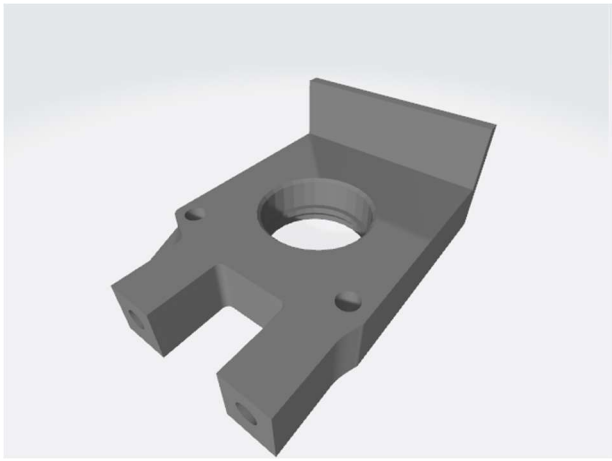
Cable Guide [2]

Cable Guide Cover [2]



Cable Holder [1]

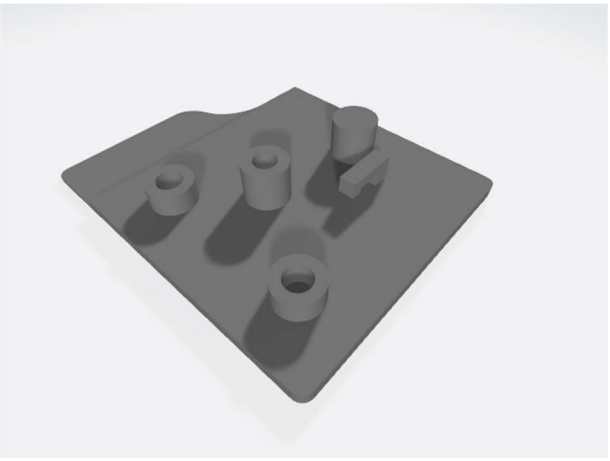
Cable Holder Cover [1]



Center Diff Mount [1]

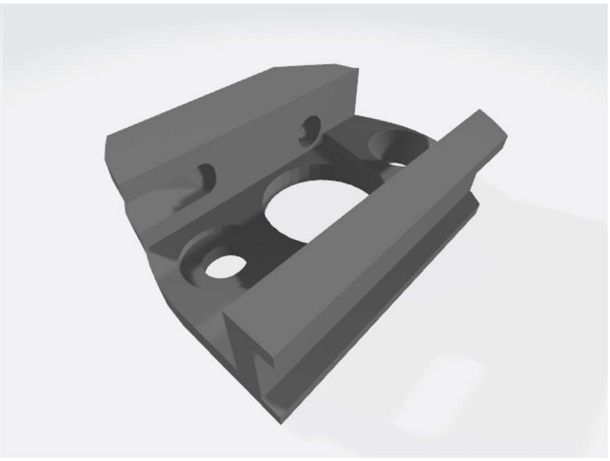
Center Diff Plate [1]

Chassis Brace [1]

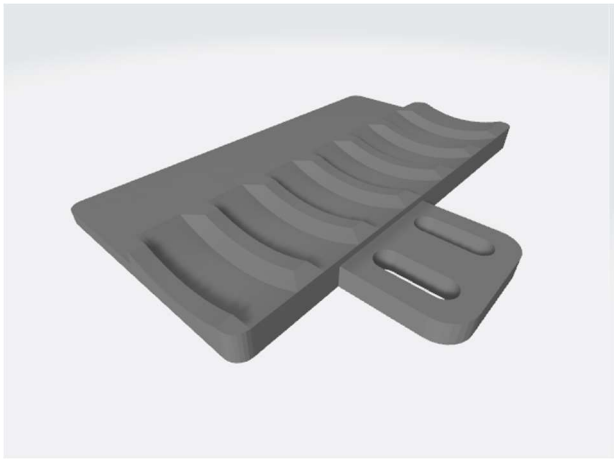


ESC Plate [1]

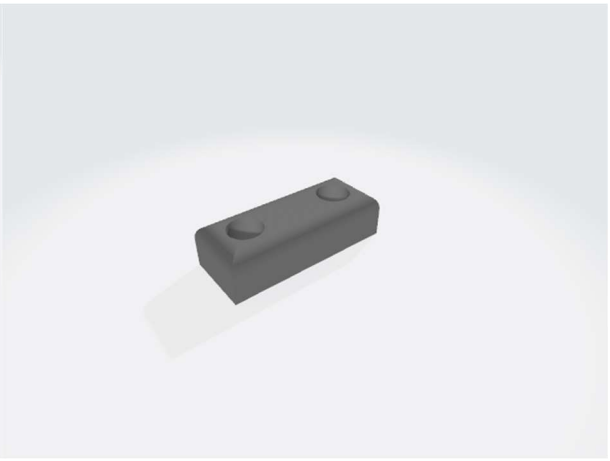
Motor Mount A [1]



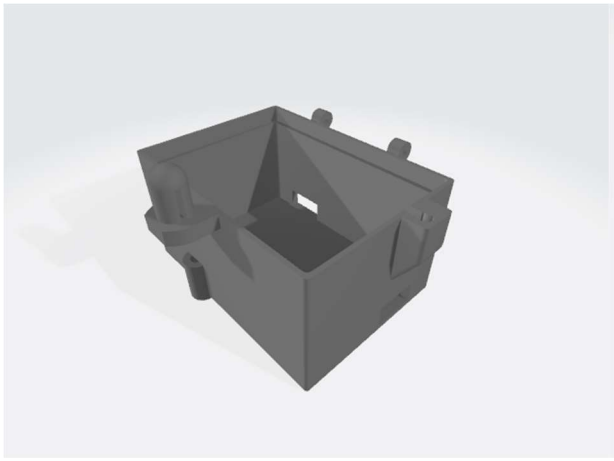
Motor Mount B [1]



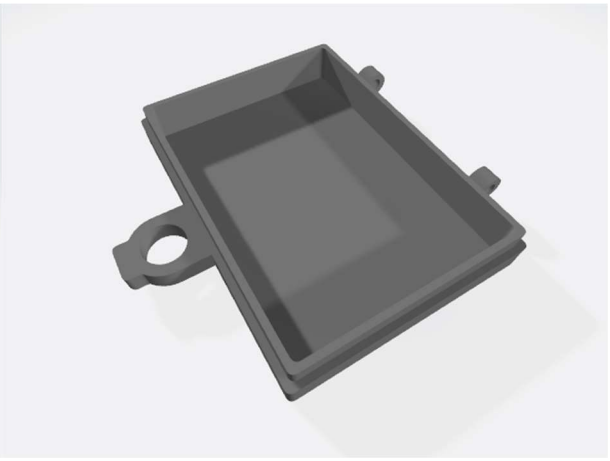
Motor Spacer [1]



Motor Spacer Clamp [1]

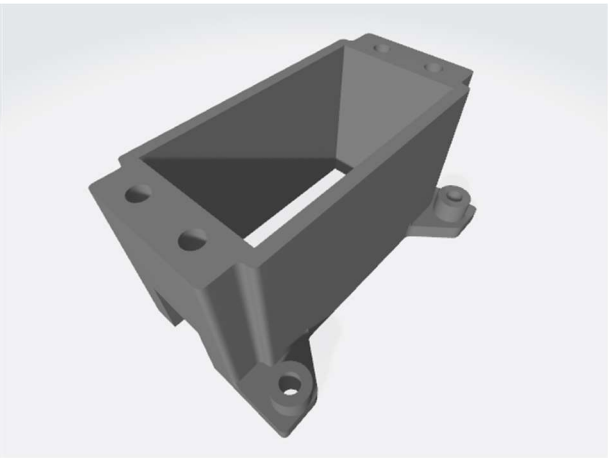


Radio Box [1]

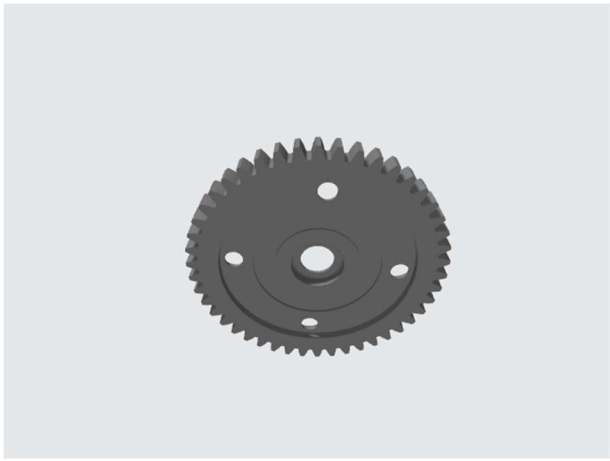


Radio Box Cover [1]

Front Brace [1]

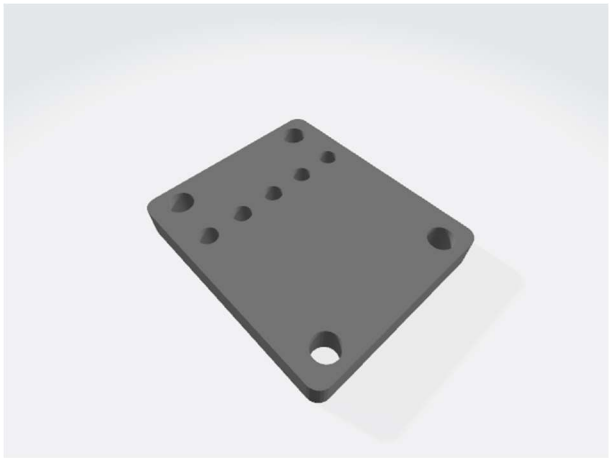


Servo Mount [1]



Spur Gear 46T part A [1]

Spur Gear 46T part B [1]



Template for cutting hole [1]

If you find any mistakes or you have any comments please let me know by email me: szafir51@tlen.pl